MASTER OF SCIENCE IN BUSINESS ANALYTICS

Degree Offered
Master of Science in Business Analytics (MSBA)

Mission
The Eberhardt School of Business develops knowledgeable, innovative business leaders in a personalized, experience-based learning environment and produces scholarship that contributes to disciplinary knowledge, informs teaching, and advances the practice of business.

We share a set of underlying principles that govern our behaviors and our ability to achieve our mission. These include:

- Maintaining a student-centered learning environment;
- Educating the whole person;
- Stimulating intellectual growth;
- Maintaining a mutually supportive community of faculty, staff and students;
- Engaging external stakeholders;
- Promoting excellence;
- Being socially responsible;
- Behaving ethically and with integrity;
- Providing service to the university, community and profession.
- Degree programs offered by the Eberhardt School of Business are designed to fulfill this mission and to provide the educational breadth and depth tomorrow's leaders will need.

Program Overview
The Master of Science in Business Analytics program is designed for students and professionals from both business and non-business backgrounds who wish to advance their careers in analytics, business intelligence, and AI. This 30-unit program includes coursework in analytics concepts and applications, database management, applied analytics, research methods, AI-enhanced programming, and leadership in analytics organizations. Students are required to complete a Capstone Project and an internship in a related field.

Graduate Admission Requirements
Admission to the Master of Science in Business Analytics is competitive and based on criteria that indicate a high promise of success. Performance in prior coursework and any relevant work experience are indications of future success.

Academic Preparation:

- Applicants must hold a bachelor's degree or its equivalent from an accredited college or university, as indicated in an official transcript.
- Applicants will typically have a GPA of 3.0 or higher on a 4.0 scale
- Applicants should have demonstrated quantitative capabilities. If the applicant's quantitative abilities are not demonstrated in the application, the applicant will be asked to complete a pre-approved course with a minimum course grade of "B."

Professional Experience:

- There is no minimum work experience required for admission.

International Students:

- See the Office of Graduate Admission criteria for International Students

Learning Outcomes
All graduates of the Master of Science in Business Analytics program will be able to:

1. Demonstrate technical proficiency in mathematics, statistics, programming, and software tools for business analytics.

2. Effectively communicate in oral and written forms at a high-level of professional expectations.

3. Translate and analyze data into presentable and actionable business/managerial solutions with an awareness of ethical issues in the field.

Master of Science in Business Analytics

MSBA 210	Business Analytics	3
MSBA 220	Business Concepts and Applications of Analytics	3
MSBA 230	Database Management Systems with SQL and R	3
MSBA 235	Research Methods and Ethics	3
MSBA 270	AI-Enhanced Programming for Business Analytics	3
MSBA 240	Advanced Business Analytics	3
MSBA 250	Applied Business Analytics	3
or MSBA 251	Marketing Analytics	
MSBA 260	Leading the Analytics Organization	3
MSBA 265	Special Analytics Topics	3
MSBA 286	Capstone Project	3
MSBA 287	MSBA Internship	
Total Units		30

MS Business Analytics Courses

MSBA 210. Business Analytics. 3 Units.
Analytics involves the extensive use of computer applications, data of various sizes, and quantitative methods to inform managerial decisions. Students will learn essential theories, concepts, methodologies, and use leading computer tools including data visualization to preform analysis and interpretation on real world data.

MSBA 220. Business Concepts and Applications of Analytics. 3 Units.
This course reviews key concepts in the major business disciplines such as accounting, finance, management, operations, marketing, and how analytics can be applied in these disciplines.

MSBA 230. Database Management Systems with SQL and R. 3 Units.
This course provides a comprehensive introduction to database modelling and design. In this course the language of relational databases: Structured Query Language (SQL) will be covered comprehensively. This course will also explore the origins of NoSQL databases and the characteristics that distinguishes them from traditional relational database management systems.

MSBA 232. Programming for Data Science. 1 Unit.
In this course, students will learn the fundamentals of a data-oriented programming language such as Python. The learning objectives will be achieved by performing multiple small assignments designed for beginners of programming and system development.

MSBA 235. Research Methods and Ethics. 3 Units.
In this course, students will learn the entire typical research process, including formulation of intent and design, methodology, statistical techniques, management of data, legal and organizational issues, and ethical considerations.

MSBA 240. Advanced Business Analytics. 3 Units.
This course covers advanced business analytics techniques. Topics include data preparation, predictive analysis, association, visualization, and others. Enterprise level software will be used to analyze large real-world data.

MSBA 250. Applied Business Analytics. 3 Units.
This course provides students an opportunity to apply analytics in various business disciplines, such as marketing, finance, accounting, management, operations, and others.

MSBA 251. Marketing Analytics. 3 Units.
This course will serve as an introduction to marketing analytics. Students will study various tools for generating marketing insights from empirical data in areas such as segmentation, targeting and positioning, satisfaction management, customer lifetime analysis, customer choice, and product and price decisions using conjoint analysis. This is an experiential learning course where students will define and refine KPIs, analyze business requirements, select appropriate analytics platforms, and use data to solve real-world business problems. Students will learn how analytics can be used to optimize all areas of marketing including consumer behavior prediction, advertising targeting and optimization, social media, mobile and digital platforms/applications.

MSBA 260. Leading the Analytics Organization. 3 Units.
Every successful organization needs a strategy to connect its mission, vision and goals to employees, customers, and other entities. Big data offers new and exciting ways to learn more about short term and long-term firm level decisions, customer wants and needs, employee attraction and retention, and sound, evidence based decision making. In this course, you will learn tools and frameworks for data-driven decision making and how to lead your organization with the information available to you.

MSBA 265. Special Analytics Topics. 3 Units.
This class will familiarize students with a broad cross-section of models and algorithms for machine learning. In this course students will be able to make sense of data using data cleaning and various visualization techniques, as well as data mining algorithms, on real world data that is both interesting and relevant. Students will also learn the fundamentals of NLP and will be able to perform different text processing models on document and social media text.

MSBA 270. AI-Enhanced Programming for Business Analytics. 3 Units.
This course introduces students to programming with Python through the lens of current AI-powered tools that enhance productivity, automate analytics workflows, and improve code quality. Emphasizing business applications, the course blends core Python instruction with exploration of industry-standard coding assistants and AI integration.

MSBA 285. Capstone Project I. 3 Units.
In the Capstone Project course, each student will complete a comprehensive business analytics project on a selected industry or business discipline, such as agriculture, wine, healthcare, environmental, social media, marketing, HR, finance, accounting, etc. The course is divided into two parts. The main tasks in Part 1 include project topic selection, problem identification, project planning and design, and data collection.

MSBA 286. Capstone Project. 3 Units.
In the Capstone Project course, each student will complete a comprehensive business analytics project on a selected industry or business discipline, such as agriculture, wine, healthcare, environmental, social media, marketing, HR, finance, accounting, etc. The course is divided into two parts. The main tasks in Part 2 include data analysis, project revision, report writing, report publication, and project presentation.

MSBA 287. MSBA Internship. 1 Unit.
The MSBA Internship is a required component of the MSBA program and provides students with a supervised professional experience that integrates advanced analytical coursework with practical application in a business environment. Students complete a minimum of 120 hours in an approved internship with a private, public, or nonprofit organization. The experience is designed to enhance students' technical, analytical, and professional competencies while exposing them to real-world data and decision-making contexts.